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RESERVE

For exchange of information
on nutrition programs
and activities

NUTRITION

PROGRAM NEWS

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Food Guides—Their Development and Use

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Nutritionists and workers in allied professions, concerned with helping people to upgrade diets and thus to upgrade nutritional health, usually rely on a food guide of some description. In the United States today, most workers use "Food for Fitness—a Daily Food Guide." It is a reliable guide, and many texts and visuals on nutrition are geared to it.

From time to time we receive questions from our readers about the application and use of the guide. From these questions it seems that an explanation of the rationale of this guide and a rundown on earlier guides which led up to the present one would be helpful.

Most questions in the past few months have been concerned with whether or not the guide is current with the 1968 Recommended Dietary Allowances.

In this issue of Nutrition Program News we report a short history of USDA food guides and an appraisal of "Food for Fitness—a Daily Food Guide."

EARLY USDA FOOD GUIDES

We do not know exactly when the first so-called food guide was prepared; certainly a great deal of food and nutrition information was disseminated during World War I. We believe that the development of food guides as a device for teaching nutrition stems from the efforts of Caroline L. Hunt, a specialist in food and nutrition in the former Bureau of Nutrition and Home Economics.

Miss Hunt described and pictured five food groups in a now historic bulletin called "A Week's Food for the Average Family" published by USDA in 1921. This was superseded in 1923 by a bulletin entitled "Good Proportions in the Diet." The rationale of her plan was as follows:

"The number of different food materials available

in most parts of the United States is very great and is constantly increasing as a result of improved methods of agriculture, the invention of new manufacturing processes, the introduction of foreign food plants, and the cultivation of wild varieties. There is no one of all these many foods that cannot be introduced into the diet in such a way as to contribute to its wholesomeness or its attractiveness, but the number of different kinds of food needed is very small. Many food materials, the various cereals, for example, are practically interchangeable in the diet. In fact, most of the common foods may be classified into five groups according to their composition and uses, namely, (1) vegetables and fruits, (2) meat, milk, and other foods depended on for complete and efficient protein, (3) cereals, (4) sugar and sugary foods, and (5) fats and fat foods.

"A meal, a day's ration, or a weekly food supply made up from representatives of all these five groups is likely to provide all the substances required to make the diet wholesome and attractive, and for this reason the classification should serve as a guide in the selection of foods and the planning of meals.

"It should be of some help, too, in comparing the cost of different foods, for it separates foods that have

Cal Calcium is on TV

The Consumer and Food Economics Research Division and the Information Division of Agricultural Research Service have launched a public service 1-minute color TV spot featuring calcium, its functions and food sources. Cal Calcium is a tooth who announces "Cal Calcium is my name and construction is my game." The spot is perky and eye appealing. Watch for it on your local stations.

little or nothing in common, and brings together under one head food materials that are enough alike to be compared in price. For example, to know that a pound of salt codfish costs 10 cents more than a pound of prunes does not make economical meal planning easier. It is helpful, however, to know that one kind of breakfast cereal costs 15 cents, while another that might be substituted for it costs 7 cents, or that a certain amount spent for an inexpensive kind of fruit will bring as good returns in food value as twice that amount spent for some out-of-season variety."

In describing the proportions of food, Miss Hunt equated them with energy value as follows:

"As a rule, the diet will be sufficiently bulky and flavorful and will furnish the right proportions of starch, fat, and sugar for the taste of most people if the vegetables and fruits furnish about 20 percent of the fuel; the meat, eggs, milk, and similar foods, 25 percent; the cereal foods, 25 percent; sweets, 10 percent; and fats and fat foods, 20 percent. It will also furnish satisfactory kinds and amounts of protein, mineral substances, and vitamins."

Thus, we see that in the early 1920's, USDA was advising the grouping of foods similar in nutrient content as a means of helping people with food selection. Even then, homemakers were reminded that—"since no two materials, even those that are grouped together, serve exactly the same purpose in the diet, attention is called to certain exceptionally important foods under each group that must not be omitted for any long period of time."

Over the years, revisions were made. In some instances, foods were regrouped but always on the basis of similarity in nutrient content. As other agencies developed programs with a nutrition component, nutritionists from such agencies were consulted when revisions were made.

THE BASIC SEVEN

World War II made it necessary to ration such food items as meat, sugar, butter, and canned goods. It was decided that a new guide was needed, and the Basic 7 food guide was developed as part of the National Nutrition Program under the agency that became the War Food Administration, USDA. Nutritionists in the former Bureau of Human Nutrition and Home Economics worked with nutritionists of other agencies and with the Advertising Council to develop this guide which everyone would use in the National Nutrition Program.

Consideration was given to the emphasis needed to correct common dietary shortages, and suggestions were made for alternate choices in case of limited sup-

plies of certain types of food during the war. The Basic 7 was first published by the USDA in 1943 as pamphlet NFC-4, "The National Wartime Food Guide."

Following the war, the Basic 7 was reviewed by nutritionists of USDA. Unlike the more specific guides for quantities contained in other USDA food planning bulletins, the Basic 7 was a very general guide for selecting a good diet. The revision was issued in 1946 as the National Food Guide, which differed from the earlier version in including the number of servings of each food group needed daily.

The Basic 7 was widely used for many years; then various groups evidenced an interest in a guide with fewer food groups. Nutritionists in the Department decided it was time for a major revision.

FOOD FOR FITNESS—A DAILY FOOD GUIDE Development

In the fall of 1954, nutritionists reviewed the need for a food guide. Surveys in this country showed that the diets of many people failed to provide the amounts of certain nutrients recommended for good nutrition. The gap between consumption and recommended allowances tended to be widest for calcium, vitamin A and some of the B-vitamins, and vitamin C. Also, there was a high incidence of obesity due to an intake of calories in excess of that needed to maintain body weight. It was evident that one of the needs of nutrition education programs was an effective food guide to help the average person choose his food more wisely.

A guide for use by individuals throughout the nation must be flexible to allow for regional and seasonal differences in food supplies, for food preferences and nutritional needs of individuals, and for differences in food budgets. The development of a simple guide that permits variety in meals and still assures a substantial proportion of daily nutritional needs is further complicated because nutrients are unequally distributed even within foods that can be grouped into broad classes.

Nutritionists also looked to our national food supply to find which kinds of foods in the quantities consumed were major sources of important nutrients. This information, along with the survey information, provided the basis for formulating the framework of the guide—how to group foods and which kinds of foods to emphasize.

Once the basic groups had been decided upon, the next step was to determine how much of each of the kinds of foods to recommend. It was decided to specify not only the number of servings, but also the size of

each serving because "a serving" could mean anything from a few tablespoons to over a cup of food.

In brief, the kinds and amounts of foods suggested in the Daily Food Guide are:

Milk Group—at least 2 cups of milk for adults, 2 to 3 cups for children under 9 years, 3 or more cups for children 9 to 12 years, and 4 or more cups for teen-agers.

Meat Group—at least two servings. (2-3 oz. lean cooked meat, without bone, per serving.)

Vegetables-Fruit Group—at least four servings including one serving of an important source of vitamin C daily and one serving of an important source of vitamin A value at least three to four times a week. (Each serving— $\frac{1}{2}$ cup or piece as ordinarily served, such as a whole banana or half a grapefruit.)

Bread-Cereal Group—at least four servings of whole grain, enriched, or restored kinds. (1 oz. ready-to-eat cereal, $\frac{1}{2}$ - $\frac{3}{4}$ cup cooked cereals, or 1 slice bread per serving.)

An evaluation of the food guide was made to see how nearly it provided a nutritionally desirable diet. It was learned, among other things, that vitamins A and C would probably be low unless specific choices among fruits and vegetables were indicated.

Since the dark-green and deep-yellow vegetables and fruits are excellent sources of vitamin A value, these foods were made a subgroup of the vegetable-fruit group in the guide. But only those that provided approximately 2,000 International Units or more of vitamin A value per serving were listed as good sources.

Vitamin C foods were also made a subgroup of the vegetable-fruit group. Choices listed as good sources of this vitamin were limited to those that supply about 40 mg. or more of vitamin C per serving, and the fair sources, to ones that furnish from 20 to 40 mg.

All fruits and vegetables that could have been listed were not included. Gooseberries, for example, are a fairly good source of vitamin C, but because so few are available in the U.S. in any quantity, it was decided to omit them from the list. On the other hand, some of the more exotic sources—such as mango and papaya—were included because it was known that the guide would be used in the Virgin Islands, Hawaii, and perhaps Puerto Rico where these fruits are found. Also, they are available to a limited extent in the continental U.S.

To safeguard calcium in the diet, quantities of milk for different age groups were specified that would provide at least two-thirds to three-fourths of the recommended dietary allowances.

Review Before Publication

Before the guide was made public, it was reviewed by a number of leading authorities on nutrition and nutrition education including members of the Inter-agency Committee on Nutrition Education, the Department of Agriculture's Food and Nutrition Advisory Committee and Home Economics Advisory Committee, and members of the Food and Nutrition Board of the National Research Council. Reviewing began in the spring of 1955.

Food industry groups with home economists on their staffs were also sent copies for review. Such groups included the National Dairy Council, Sunkist Growers, and Cereal Institute. Several of these organizations prepare materials for use in nutrition education programs and had quite an investment tied up in materials based on or using the older Basic 7 guide. Also, it was felt that food industry groups would have a vital interest in any food guide sponsored by the government. Ideas and comments from food industry groups would be most useful if available before the guide was made public.

Many comments and suggestions were received and carefully considered. Some reviewers were pleased; others were concerned.

The meat industry groups were unhappy about the serving size indicated for meat—2 to 3 ounces of lean cooked meat without bone. They pointed out that this size serving is smaller than average.

Although the quantities specified in the guide are minimum, this does not mean that people cannot or will not use larger servings. It was hoped that the guide would be suitable for all people, those with little money as well as those with more money to spend for food.

The dairy organizations were pleased with the treatment of milk and milk products. The organizations dealing with bread and cereal suggested five servings from the bread-cereal group instead of four if no cereal, as such, were included in the day's meals. Because a serving of bread is not equal in nutritive value to a serving of cereal, this suggestion was taken and incorporated into the guide.

Later Review

The guide was first published as a part of "Essentials of an Adequate Diet" issued June 1956. Later (March 1958) the guide was published as Leaflet 424, "Food for Fitness—A Daily Food Guide." Since then, it has been slightly revised twice, the last revision dated May 1967.

In the 1968 Recommended Dietary Allowances (Food and Nutrition Board of the National Research

Council-National Academy of Sciences), changes were made in recommendation for some nutrients (vitamin C and iron, for example); also, recommendations were made for other nutrients for the first time.

Since that time, the food guide has been reviewed using the 1968 allowances as the yardstick of nutritional adequacy, and it was found that some nutrients may be marginal or in short supply. The significance of these findings is questionable, however, for at least two reasons.

First, information is limited on the content in foods of certain nutrients, such as vitamin B₆, and magnesium. This makes it difficult to completely assess nutrient levels, both in diets or in guides such as the Daily Food Guide. Second, the Food and Nutrition Board recognizes that information on nutritional requirements of these nutrients is limited and has advised us that it considers the values presented as provisional.

In setting allowances for these nutrients, the Board hoped to stimulate activity for research on nutrient requirements and on food analyses. Therefore, it seems premature to make major changes in the food guide based solely on trying to reach the current recommended levels for these nutrients.

Iron is a special problem. In setting the allowance for iron, the Food and Nutrition Board recognized that it is not possible to obtain amounts recommended for all age-sex groups from ordinary foods. The Board is currently exploring appropriate ways to provide recommended amounts of iron in the diet.

THE DAILY FOOD GUIDE—A TOOL FOR EVALUATING DIETS

The Daily Food Guide is often used to rate the nutritional quality of diets. Amounts of foods eaten are compared with amounts recommended in the guide. Diets that provide at least the minimum servings suggested in the guide are often considered nutritionally adequate. However, such a comparison can give a misleading picture of diet quality because (1) combinations of food other than those suggested in the guide can provide an adequate diet and (2) the guide suggests minimum servings rather than total food needs.

Recently, data on the quantities of foods eaten by individuals in one day and on the nutrient content of these diets became available. These data were obtained by surveying 13,000 individuals as a part of the 1965-66 nationwide food consumption study.

The data provided a basis for judging how well the Daily Food Guide can indicate diet quality. The

average number of servings of food (from each of the four food groups of the guide) eaten in a day by boys and girls, men and women in different age groups were compared with the guide. Diets of individuals were also rated by comparing with the 1968 Recommended Dietary Allowances—the tool usually used for this purpose. Then the two ratings were examined.

None of the average diets of groups of individuals supplied the minimum number of servings the guide recommends from all four food groups. All diets were short in milk. Many were short in vegetables and fruits. Only the 15-17 year-old boys and men, 20-54 years old, ate as much as four servings of vegetables and fruits a day. But the average diets did contain important sources of ascorbic acid and vitamin A value although in smaller amounts than recommended.

All groups of individuals, on the average, appeared to exceed the recommendations for a minimum of four servings of breads and cereals. Estimates of the number of servings from this group are based on all kinds of breads and cereals eaten rather than on just those that were whole grain, enriched, or restored, as specified in the guide. Because the survey data do not show which items were enriched or restored, some women, in particular, may actually have eaten less than the minimum number of servings of enriched breads and cereals.

The average diets of all groups of individuals exceeded the minimum number of servings suggested from the meat group.

Though none of the average diets met the full recommendations of the Daily Food Guide, the diets of two groups—males 18-19 and 20-34 years of age—exceeded the Recommended Dietary Allowances for all seven nutrients studied in the nationwide survey of diets of individuals. Thus, some diets that may be downrated when compared with the Daily Food Guide may be providing recommended amounts of nutrients if their nutrient content were calculated and compared with the 1968 allowances.

The Daily Food Guide, as a tool in rating diets, provides an easy way to give rough estimates of diet quality. In many cases, this is all that is needed. For example, if a diet has much less milk than the amounts recommended, it is likely to also be low in calcium. If dark-green and deep-yellow vegetables are not included frequently, vitamin A may be short. And if a citrus fruit or other important source of ascorbic acid does not appear daily, a shortage of this vitamin may be suspected. However, other nutrients are not so closely associated with a single food group, and their level in diets is not as readily estimated by this method.

IN CONCLUSION

Everyone should know how to select combinations of food that will meet nutrient requirements and maintain body weight. Food guides that insure a good nutritional foundation continue to be an excellent tool for helping people make good choices from the varied and abundant U.S. food supply.

The most recent USDA guide—"Food for Fitness—a Daily Food Guide"—continues to insure a good nutri-

tional foundation, especially when other good choices are added to round out meals and to meet individual calorie needs.

In light of our best knowledge at this time, the greatest service nutritionists and workers in allied professions can offer millions of individuals in the U.S. is to encourage them to select and eat as varied a diet as possible based on current recommendations.

ICNE Meets with State and Local Nutrition Committee Members at ASFSA

Members of the Interagency Committee on Nutrition Education (ICNE) met with members of State and local nutrition committees at the annual meeting of the American School Food Service Association. The program this year included the highlights of the National Nutrition Survey and a description of the followup activities in one State.

The ICNE session was moderated by Dr. Mary Hill of the Department of Agriculture. Dr. Hill gave a brief description of the Interagency Committee on Nutrition Education: it is a voluntary committee made up of a member and an alternate from Federal and quasi-official agencies that have a nutrition component in their programs. The ICNE has a coordinating function in that it promotes exchange of information on nutrition education. Further, it seeks to exchange information with State and local nutrition committees or councils in an effort to promote the nutritional well-being of people.

Some years ago, the practice of ICNE members meeting with State and local workers was initiated as a means of exchanging information with these groups. First, we met at the time of the annual meeting of the American Home Economics Association—usually a breakfast meeting in the headquarters hotel. Later, it was suggested these meetings be held in conjunction with other professional organizations. For the last few years, we have been on the program of the American Home Economics Association, the American Dietetic Association, and the American School Food Service Association on a rotating basis.

Each year the ICNE plans to present an exchange of information on some timely subject dealing with or having implications for nutrition education. Presentations usually have an input from a member agency of ICNE and from a State or local group.

Dr. Ogden Johnson, formerly Associate Director, Scientific and Public Information, Nutrition Pro-

gram, CDC, Health Services and Mental Health Administration, Department of Health, Education and Welfare, now Director, Nutrition Division, Food and Drug Administration, reported that the final field studies of the National Nutrition Survey were completed in May 1970. Preliminary processing of data from States which completed their field work prior to January of 1969 is almost complete, and preliminary findings have been developed. As indicated in two presentations before the Senate Select Committee on Nutrition and Human Needs, given January 1969 and April 1970, the most frequent findings have been low values for hemoglobin, plasma, vitamin A, and urinary excretion of nutrients such as thiamin and riboflavin.

Certain patterns have developed which suggested that in many cases families with lower incomes are more frequently found to have low biochemical values. Also, since these families with low incomes are those in the minority groups, a relationship seems to exist between the lower values and ethnic derivation. This is particularly true in relation to the Negro population in all States studied, both in the North and the South, and of the Spanish-speaking population in Texas.

In addition, findings indicate that some age groups within the population have a higher prevalence of biochemical levels associated with poor nutrient intake. Those that are of particular concern are the school age and preschool children and individuals over 60 years of age. As the material from the survey is further evaluated, it should be possible to relate problems identified as poor nutrition to parameters such as education, type of housing, work status, size of family, and participation in welfare and food assistance programs.

The final report should also present detailed information on nutrient intake, the frequency with which

certain food groups are used, clinical status, and detailed anthropometric information, both in relation to income and other measures of nutritional status and income.

Following Dr. Johnson, Mrs. Faith Gravenmeier, School Lunch Director, West Virginia State Department of Education, told of activities in West Virginia. With the endorsement of the Governor at least two conferences were held to study the findings of the survey as they related to West Virginia.

With the nutritional problems of West Virginians documented by the findings of the survey, the next step was to mobilize all the resources with potential for helping solve the problems. This was done by calling together representatives from the various groups, apprising them of the facts, and encouraging cooperative efforts for providing solutions.

Basic plans have been made, agencies are working, and the follow-through is under way. Food distribution programs are being used to advantage, and educational efforts to upgrade levels of living in West Virginia are continuing.

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Community Health Service—Charlotte E. Smith,
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Indian Health Service—Winston Osborn, Helen
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Maternal and Child Health Service—Mary C.
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National Institutes of Health:

National Institute of Arthritis and Metabolic
Disease—Dr. Karl E. Mason, Dr. Benjamin T.
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- North Carolina (Council on Food and Nutrition)—Miss E. York Kiker, President, Marketing Specialist, Division of Markets, North Carolina Department of Agriculture, P. O. Box 2281, Raleigh 27602.
- Ohio—Dr. Betty B. Smythe, Ohio Wesleyan University, 10 Hillside Drive, Delaware 43015.
- Oklahoma—Mrs. Frances Dobbins, State Nutritionist, School Lunch Division, Office of Education, 4545 North Lincoln Boulevard, Oklahoma City 73100.
- Oregon—Anne S. Bergholz, Executive Director, Oregon Dairy Council, 0123 Southwest Hamilton Street, Portland 97201.
- Pennsylvania—Dr. George P. Barron, Jr., Professor, Foods and Nutrition, College of Human Development, Pennsylvania State University, University Park 16802.
- Rhode Island—Mrs. Evelyn Mason, Cooperative Extension Service, Woodward Hall, University of Rhode Island, Kingston 02881.
- South Carolina—Dr. Hilla Sheriff, Chief, Bureau of Community Health Services, State Board of Health, J. Marion Sims Building, Columbia 29201. Kathleen Gaston (Cochairman), Director, School Food Service Programs, State Department of Education, 202 Rutledge Building, Columbia 29201.
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- Utah—Miss Kay Franz, Department of Food Science and Nutrition, College of Family Living, Brigham Young University, Provo 84601.
- Vermont—Dr. Ellen Morse, Department of Home Economics, Terrill Hall, University of Vermont, Burlington 05401.
- Virginia (Subcommittee of the Virginia Council of

Health and Medical Care)—Dr. S. J. Ritchey, Head, Department of Human Nutrition and Foods, College of Home Economics, Virginia Polytechnic Institute, Blacksburg 24060.

Washington—Peggy Pipes, Nutritionist, Clinical Training Unit, Child Development and Mental Retardation Center, University of Washington, Seattle 98105.

West Virginia—Dr. Reginald Krause, Chairman, Department of Biochemistry, Basic Sciences Building, Medical Center, West Virginia University, Morgantown 26506.

Wisconsin—Dr. Nancy E. Johnson, Nutritional Sciences, Education, University Extension, 148 Family Resources and Consumer Sciences Building, University of Wisconsin, Madison 53706.

Puerto Rico—Nexy A. Quinones Toyos, Nutrition Consultant, Maternal and Child Health Programs and Milk Station Program, Nutrition Program, Department of Health, Santurce 00907.

Virgin Islands—Mrs. Julia Taylor Wallace, Director, Bureau of Nutrition Services, Department of Health, St. Thomas 00802. Mr. Harold Clum, Director, Extension Service, College of the Virgin Islands, St. Croix 00801.

MATERIALS

Listing of these materials is for the information of readers and does not necessarily mean recommendation. Materials or information on them may be obtained from the addresses given. Symbols refer to:

GPO: Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402.

INF: Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

Applied Nutrition

Child Nutrition Programs—Handbook for Volunteers. FNS-10. U.S. Department of Agriculture. 1970. 18 pp. INF.

Family Fare—A Guide to Good Nutrition. Home and Garden Bulletin 1. U.S. Department of Agriculture. Rev. 1970. 91 pp. INF.

Malnutrition and Learning, by Merrill S. Reed, adapted from article in American Education. Information Office, National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Maryland 20014.

New Executive Secretary for ICNE

Mrs. Hazel E. Hildebrand assumed the duties of executive secretary for the Interagency Committee on Nutrition Education as of July 1, 1970. She replaces Miss Mabel A. Walker who will now devote full-time to applied nutrition research programs of the Consumer and Food Economics Research Division, Agricultural Research Service.

Food Composition

Nutritive Value of Foods. Home and Garden Bulletin 72. U.S. Department of Agriculture. Rev. 1970. 41 pp. INF.

Food Preparation and Storage

Beef and Veal in Family Meals. Home and Garden Bulletin 118. U.S. Department of Agriculture. Rev. 1970. 30 pp. INF.

Freezing Meat and Fish in the Home. Home and Garden Bulletin 93. U.S. Department of Agriculture. Rev. 1970. 24 pp. INF.

Home Freezing of Poultry. Home and Garden Bulletin 70. U.S. Department of Agriculture. Rev. 1970. 24 pp. INF.

Making Pickles and Relishes at Home. Home and Garden Bulletin 92. U.S. Department of Agriculture. Rev. 1970. 32 pp. INF.

Money-Saving Main Dishes. Home and Garden Bulletin 43. U.S. Department of Agriculture. Rev. 1969. 48 pp. INF.

Nuts in Family Meals. Home and Garden Bulletin 176. U.S. Department of Agriculture. 1970. 14 pp. INF.

Vegetables in Family Meals. Home and Garden Bulletin 105. U.S. Department of Agriculture. Rev. 1970. 32 pp. INF.

Visuals

Breakfast and the Bright Life. 1970. 60 slides. \$9 per set. Photography Division, Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

Cal Calcium. A 60-second, color, animated cartoon TV spot. \$7.50. Motion Picture Service, Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

Milk Basic to Good Nutrition. 50 slides (C-162). Photography Division, Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.